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- (74) Agent: **ADLER, Benjamin, A.**; Adler & Associates, 8011 Candle Ln., Houston, TX 77071 (US).
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- (71) Applicant (*for all designated States except US*): **SLOAN KETTERING INSTITUTE FOR CANCER RESEARCH** [US/US]; 1275 York Avenue, New York, NY 10021 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **TEMPST, Paul** [US/US]; 402 East 64th Street, Apt. 4C, New York, NY 10021 (US). **GEMBITSKY, Dmitry, S.** [UA/US]; 32 Prospect Street, Bloomfield, NJ 07003 (US).
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(54) Title: **PROTEIN MICRO-ARRAYS AND MULTI-LAYERED AFFINITY INTERACTION DETECTION**

(57) **Abstract:** The present invention provides proteomic techniques that extend sensitive and quantitative analysis of proteins to post-translational modifications. Protein micro-arrays and/or multiplex coded-microbeads are used in combination with multilayered affinity interaction detection (MAID) methods that permit high throughput analysis of cellular protein modifications and functional protein interactions.